Perspectives on Prehistoric Landscapes:
Archaeology at the Puncheon Run Site, Kent County, Delaware

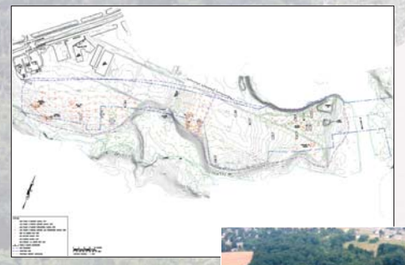
Charles LeeDecker, John Bedell, Rob Jacoby
THE Louis Berger Group, INC.
Kevin Cunningham
Delaware Department of Transportation

Abstract

Located in Dover, Delaware, on a peninsula where a small stream (Puncheon Run) enters the St. Jones River, the Puncheon Run Site was the focus of a series of investigations that revealed a series of Native American occupations spanning 3000 BC to AD 1500.

Artifacts were widely scattered over more than 20 acres, usually in low quantities, but concentrations of artifacts and features were identified at several locations. Given the separation between these concentrations of features and artifacts, the site is viewed as a series of separate activity areas within a landscape rather than what archaeologists designate as a single "site." The final program of excavation focused on five areas. The Metate area is believed to have been repeatedly used as a fishing camp between 2000 and 1000 BC. Excavations in the Feature 30 Area focused on pit features that may have been used for storage or some ritual purpose, probably between 600 and 900 AD.

At the western end of the site, excavations in the Silo Pit area interpreted as storage pits circa 100 and 400 AD., on the Cobble Bar quarry area, and the Buried Plowzone where historic slopewash had preserved an assemblage of prehistoric ceramics.



Aerial View of the Site.

The Landscape Approach

One of the most distinctive features of the Puncheon Run Site is that the archaeological features and deposits were spread over a very broad area, rather than being concentrated in a smaller, compact area that would be traditionally viewed as a single archaeological site. This allowed interpretation to proceed from a broader perspective, leading to new insights on Native American settlement patterns and their relationship to the larger landscape.

Current settlement models generally feature base camps occupied by groups organized at a band level. The communities associated with these camps would have been composed of extended family households, with the total group size fluctuating. The wide separation of activity areas at Puncheon Run conjures up images, not of an entire band, but of small task groups, perhaps formed on the basis of age or gender. One should not be tempted to view entire communities moving, in straight-line fashion, from one food source or work area to another. Surely, individuals and small groups ranged widely across the landscape, to obtain resources that were endemic to very specific locales, such as medicinal plants and rare animals. A more complete picture of settlement patterns should account for these complexities within the cultural and natural landscape.

Storage pits were widely distributed across the Puncheon Run landscape, but most were found in outlying locations away from the principal residential areas.

The discovery of a large number of storage pits in an isolated area was clearly at odds with the typical base camp model wherein food storage facilities are located within residential areas. Why was an outlying place used for storage of valuable resources? The simplest interpretation is concealment. Hunter-gather groups may have used storage pits that were broadly distributed across the landscape, in locations that were deliberately isolated from their main habitation areas, to conceal their surplus foods from enemies or emerging elite classes who demanded tribute. The isolation of storage pits at Puncheon Run also calls into question the belief that storage pits imply accumulation of surplus and increasing sedentism, since the site seems to have been used by small, highly mobile groups.

Native American Foodways

Information on subsistence practices was one of the major research areas. Direct information about Native American foodways in the Middle Atlantic coastal plain is rare, and the lack of subsistence information makes it difficult to understand the economic base of Native American societies in the region, their settlement patterns, their degree of mobility, and other important issues.

Dietary remains such as bone were virtually non-existent, and a variety of techniques were employed to examine subsistence:

- soil chemistry
- flotation recovery
- phytolith analysis
- protein residue analysis

Geochemical analysis of feature fills showed some abnormally high concentrations of strontium. Strontium is rare in Delaware's soils, but it is common in sea water, and marine organisms incorporate it into their bodies. Investigations were begun into whether the elevated Strontium levels may be related to the processing of anadromous fish.

Flotation recovery techniques provided some of the most significant information regarding prehistoric subsistence patterns. At Puncheon Run, only a few analytically significant remains were found, including hickory nut shell, a few goosefoot (*Chenopodium*) seeds, and one seed from an American Lotus (*Nelumbo lutea*). Hickory nut and goosefoot are relatively common in prehistoric archaeological assemblages, but the lotus seed was unusual. The American Lotus is native to the Mississippi basin, and it may have been introduced into the east by Native Americans, who harvested its fleshy rhizome and edible seeds.

Indians Fishing. Watercolor by John White, circa 1585 shows different fishing techniques used in Coastal Carolina.

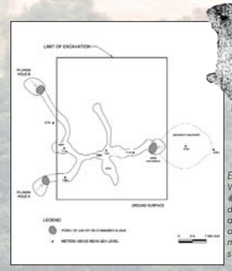
Experimental butchering of eel was undertaken in association with protein residue studies.

Aside from coastal shell middens, very little fauna has been recovered from Native American archaeological contexts in Delaware. Therefore, a program was developed for the identification of "blood residue" on stone tools from the site. Protein residues were extracted from a number of stone tools, and these were tested for species identification using the crossover-immuno- electrophoresis (CIEP) technique. The species identified included American eel, gizzard shad, Atlantic croaker, striped bass, bay anchovy, and deer, suggesting a heavy reliance on fish.

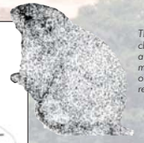
Experimental Archaeology

Archaeological interpretation of cultural behavior must rest on a sound understanding of the processes that shaped the archaeological record. At Puncheon Run, a number of studies were specifically designed to understand these processes:

- geomorphological investigations
- soil chemistry analysis
- artifact distribution studies, including refitting of fire-cracked rock
- excavation of a woodchuck den
- investigation of the effects of tree-fall or tree-throw
- lithic tool edge-wear analyses
- artifact replication studies



Excavation of Woodchuck Den #8 showed disturbed soil and artifacts to a depth of more than one meter below ground surface.



The collapse of woodchuck chambers and tunnels is linked to a cycle of burrowing activity that may, over time, create a deposit of displaced soil and artifacts that resembles a cultural feature.

Below: *Refitted Fire-Cracked Rock.*

Right: *Pattern of Fire-Cracked Refits from Metate Block Excavation.*

A large amount of waste material is generated in the replication of a single narrow-bladed stemmed point.

Project Sponsor: Delaware Department of Transportation <http://www.state.de.us/deldot>

Cooperating Agency: Federal Highway Administration <http://www.fhwa.dot.gov>

Consultant: THE Louis Berger Group, INC. <http://www.louisberger.com> <http://www.culturalresourcegroup.com>